

Application No. 10/644,932
Response to Office Action of August 4, 2008

Patent
Attorney Docket No. 86503-76

REMARKS

The Examiner rejects claims 1-24, 27, 30-32 and 34-40 under 35 USC 103(a) as being unpatentable over Jonsson et al. (U.S. Patent 5,513,246, hereinafter referred to as "Jonsson"), in view of Cheong et al. (U.S. Patent 6,477,154, hereinafter referred to as "Cheong"). In response, the Applicants disagree and traverse the rejection.

I. Jonsson has a fatal deficiency

Claim 1 is reproduced below for the Examiner's convenience:

A device for integration into a base station of a type that includes at least one radio-transceiver for receiving and transmitting radio communications to a plurality of subscriber stations; the device comprising:

an input device operable to be coupled to the at least one radio-transceiver for receiving a handoff signal from the at least one radio-transceiver at a first mode respective to a first coverage area of the communication system;

an output device for delivering the handoff signal at a second mode respective to a second coverage area;

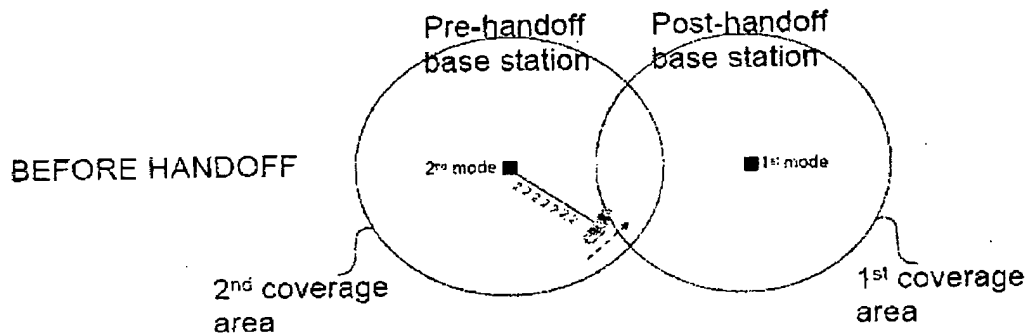
a converter coupled to said input device and said output device for translating the handoff signal from the first mode into the second mode; the second mode handoff signal for indicating to a subscriber station operating in the second mode within both of the coverage areas to switch from the second mode to the first mode so that the subscriber station operates in the first mode.

A main focal point of this and previous responses is the significance of the converter which translates the handoff signal from the "first mode" to the "second mode", and the Applicants believe that it is worth exploring this aspect in some detail to complement the Examiner's understanding of the present invention. Specifically, consider a pre-handoff base station that communicates with subscriber stations in the second (2nd) mode, and a post-handoff base station (i.e., the device of claim 1) that communicates with subscriber stations in the first (1st) mode. Consider now a particular subscriber station that is being serviced by the pre-handoff base station (i.e., in the 2nd mode) and which enters an area that intersects the coverage areas serviced by the pre-handoff base station (in the 2nd mode) and the post-handoff base station (in

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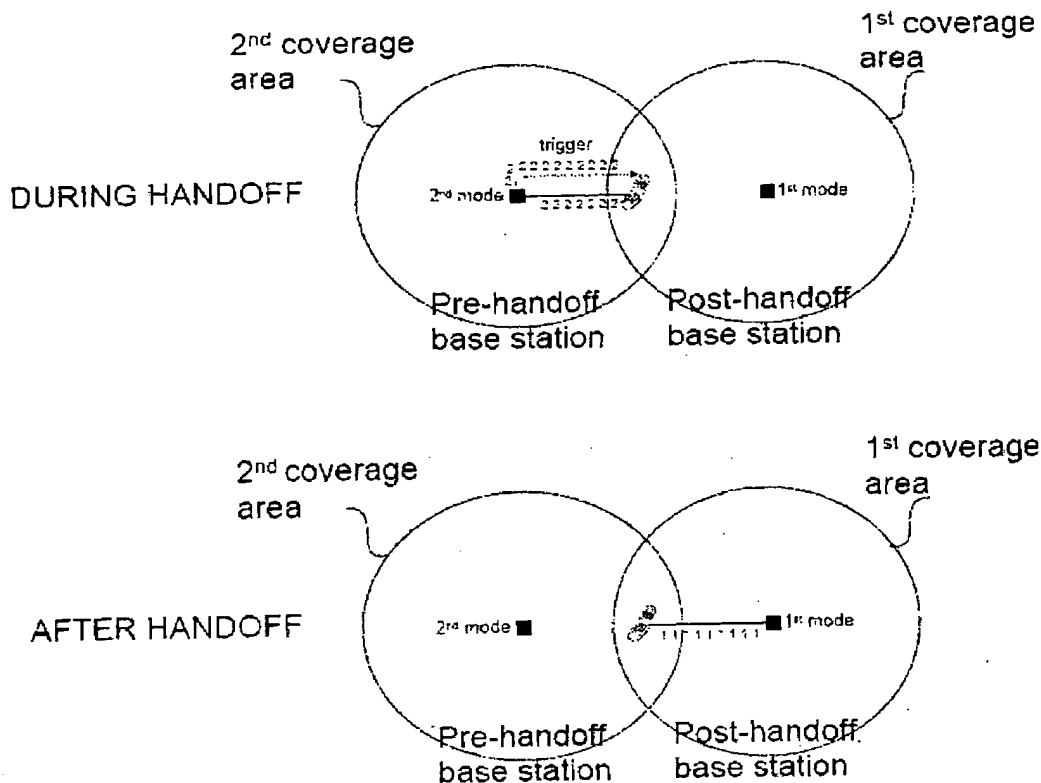
the 1st mode). The situation is illustrated as follows (where the dashed arrow illustrates the direction of movement of the particular subscriber station and the series of numbers [2 2 2 2 etc.] conceptually indicates the mode in which communication is being carried out):



Now, let us consider Jonsson and the situation during handoff. To begin with, in Jonsson, there is no detail about the handover process, just that it occurs (step S25). If triggering of handover in Jonsson is done, then it seems reasonable to infer that it is done by the base station with which the particular subscriber station is communicating prior to handover, namely the pre-handoff base station. This makes Jonsson no different from other conventional approaches for triggering handoff. In such cases, the pre-handoff base station (which, it is recalled, operates in the 2nd mode) makes a handoff decision and triggers handoff by communicating with the particular subscriber station. Such communication occurs in the 2nd mode, and tells the particular subscriber station to switch over to the 1st mode and communicate thereafter with the post-handoff base station in the 1st mode. The situation is illustrated as follows:

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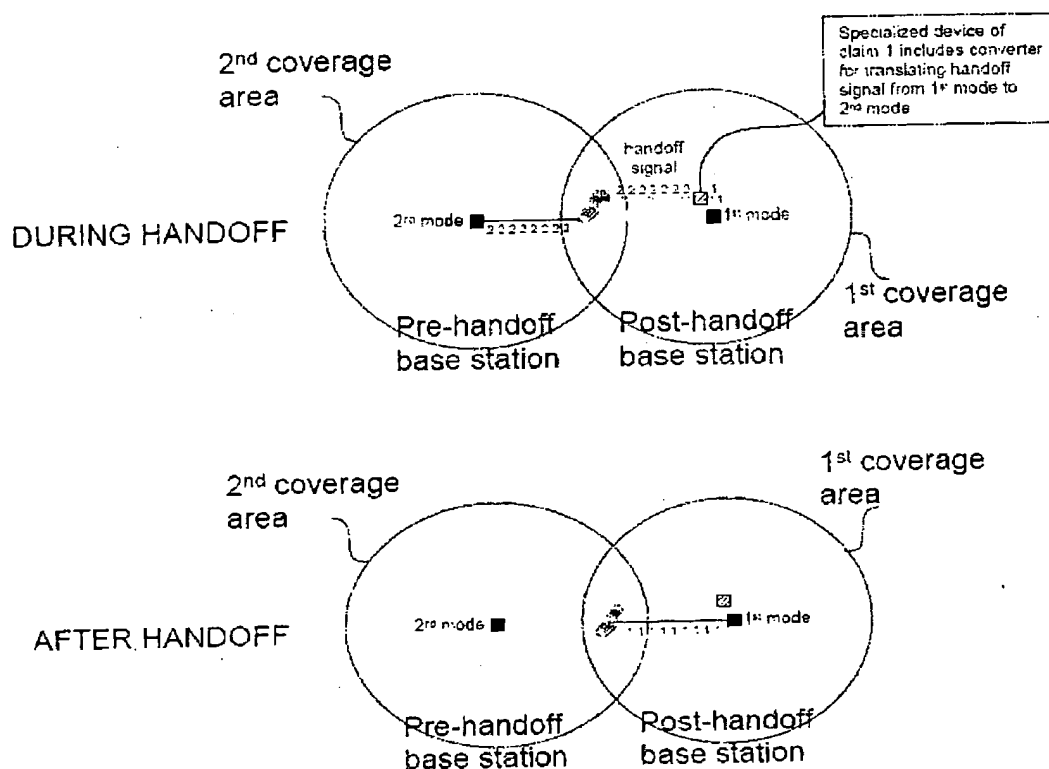
One problem with the above approach is that at the conclusion of handoff, the pre-handoff base station leaves matters in the hands of the post-handoff base station, which may or may not actually be ready to start communicating with the particular subscriber station once handoff is complete. This could lead to a call being dropped, for example.

To alleviate this problem, the Applicants have considered a different approach where it is desired that the post-handoff base station (which, it is recalled, operates in the 1st mode) trigger handoff by generating a handoff signal. A potential problem arises, however, because the handoff signal will be generated by the post-handoff base station in the 1st mode but the particular subscriber station is still communicating with the pre-handoff base station in the 2nd mode. To solve this potential problem, the post-handoff base station needs to translate the handoff signal from the 1st mode to the

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2nd mode so that it is properly received by the particular subscriber station. Accordingly, there is a need for a specialized device at the post-handoff base station (i.e., the device claimed in claim 1) that receives the handoff signal in the 1st mode (i.e., the native mode of the post-handoff base station) and incorporates "a converter [...] for translating the handoff signal from the first mode into the second mode; the second mode handoff signal for indicating to [the particular] subscriber station operating in the second mode within both of the coverage areas to switch from the second mode to the first mode so that the [particular] subscriber station operates in the first mode." The situation is illustrated as follows:



It can be observed that the handoff signal, which was received by the specialized device in the 1st mode, but is then translated into the 2nd mode by the converter, manages to "infiltrate" the subscriber station which had heretofore been communicating with the pre-handoff base station in the 2nd mode. The handoff signal then provokes a change in the operating mode of the particular subscriber station

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(switching it to the 1st mode) and figuratively “pulls” the subscriber station towards the post-handoff base station.

Thus, the “AFTER HANDOFF” situation is the same compared to the conventional approach, whereby the particular subscriber station ends up communicating in the 1st mode with the post-handoff base station. However, the “DURING HANDOFF” situation is dramatically different. Specifically, the translation provided by the presently claimed converter and device allows the handoff signal from the post-handoff base station, which normally operates in the 1st mode, to nevertheless be sent to the particular subscriber station in the 2nd mode. In this way, the post-handoff base station has greater control of when handoff is triggered, which can lead to advantageous performance, such as fewer dropped calls.

In summary, the triggering of handoff by the post-handoff base station (and particularly, the presence of “a converter [to] translate[e] the handoff signal from the first mode into the second mode”) as claimed, described and illustrated herein, is well outside anything taught or suggested by Jonsson.

II. Combining Cheong with Jonsson does not remedy Jonsson's fatal deficiency

Cheong's converter (305 in Fig. 4) converts cable frequencies to radio frequencies. It does not convert a handoff signal from one mode respective to one coverage area into another mode respective of another coverage area. Cheong therefore does not remedy the deficiency of Jonsson. Stated differently, the above explanation of the deficiencies of Jonsson and the differences between the claimed invention and the conventional approach remain completely and utterly unchanged regardless of the whether Cheong is combined with Jonsson or not. It is therefore respectfully submitted that the combination of Jonsson and Cheong is as distant from claim 1 as Jonsson alone.

III. The stated reasoning for combining Cheong with Jonsson is flawed

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Quite independently of the above, the Applicants now turn to the issue of motivation to combine the cited references. While the Applicants do not feel that it is necessary to deal with this aspect in order to overcome the rejection under 35 USC 103, this Section is nevertheless included for completeness.

On page 4 of the Office Action, the Examiner alleges that the motivation to combine Jonsson with Cheong is to “perform[...] a softer handoff between cells”. However, the Applicants respectfully submit that the softer handover¹ referred to by Cheong does not follow from the use of a converter. In fact, it should be apparent that the softer handover in Cheong is achieved due to the CCS 603 in Fig. 9, which is in the mBSC and is seen to lack a converter. The converter, which is in the mBS (and not in the mBSC) merely transforms cable frequencies to radio frequencies but does not play a role in making the handover any “softer” than in the prior art Cheong aims to overcome. Rather, Cheong’s type of converter (which, again, is merely a cable frequency to RF converter) seems to be required in *all* types of handover envisaged by Cheong, including the types of handover whose “softness” Cheong seeks to improve.

Thus, one cannot reasonably conclude that the converter in Cheong has any particular impact on the “softness” of the handover. It follows that a person skilled in the art seeking to “soften” Jonsson’s handover would not look to the converter of Cheong, since the improved softness coveted by Cheong is not attained thanks to any converter. As such, and with all due respect, it is submitted that the Examiner’s alleged motivation for combining the cited references is flawed.

IV. Claim 1 is not obvious

It is respectfully submitted that the Examiner’s rejection fails to satisfy either prong of the obviousness inquiry as set forth in *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985), quoted in MPEP 706.02(j): “[t]o support the conclusion that the claimed invention is directed to obvious subject matter, either the references must

¹ Cheong uses the term “handover” as opposed to “handoff”.

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expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." (emphasis added).

In particular, it is respectfully submitted that Sections *I* and *II* above have shown that the combination of Jonsson and Cheong falls far short of expressly or impliedly suggesting the subject matter of claim 1. In addition, and quite independently of the foregoing, it is respectfully submitted that Section *III* above has shown that the motivation for combining Jonsson and Cheong alleged by the Examiner is flawed and does not qualify as a "convincing line or reasoning".

As such, it is respectfully submitted that claim 1 is not obvious and the Examiner is respectfully requested to withdraw the rejection under 35 USC 103.

V. Other claims

The other independent claims (1, 10, 17, 27 and 30) include features similar to those of independent claim 1 and therefore the same arguments as those set forth in support of claim 1 also apply to these claims. As far as dependent claims 2-7, 11-16, 18-24, 31-32 and 34-40 are concerned, each of these claims is dependent on one of independent claims, and therefore incorporates by reference all of the features of the respective base claim. As such, the above arguments that support a finding of non-obviousness of the independent claims also apply to the dependent claims.

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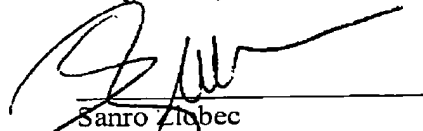
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CONCLUSION

In view of the foregoing, the Applicants are of the view that claims 1-24, 27, 30-32 and 34-40 are in condition for allowance. Favorable reconsideration of the claims and withdrawal of all rejections is respectfully requested. A Notice of Allowance is earnestly solicited.

If the application is not considered to be in full condition for allowance, for any reason, the Examiner is respectfully requested to contact the Applicants' agent at the below coordinates to discuss any remaining issues with a view to expediting the prosecution of this application and avoiding the need for further proceedings.

Respectfully submitted,


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